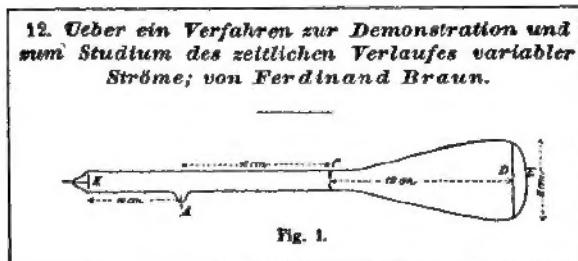


Friedrich Kurylo; Charles Susskind. *Ferdinand Braun: A Life of the Nobel Prizewinner and Inventor of the Cathode-Ray Oscilloscope*. Foreword by Bern Dibner. xiv + 289 pp., illus., apps., bibl., index. Cambridge, Mass./London: MIT Press, 1981. \$29.95.

Ferdinand Braun (1850–1918) was a German radio physicist, inventor, and educator who shared the Nobel Prize in physics in 1909 with Guglielmo Marconi. Braun received the award for technical improvements in wireless apparatus, notably the use of inductive coupling between circuits, although it would probably have been more appropriate to honor him for his invention of the "Braun tube" or cathode-ray tube, the device that has become so ubiquitous in television receivers and video-display units. He also pioneered in the investigation of non-Ohmic rectification at junctions between metallic wires and various minerals in the 1870s, research that in retrospect was in the realm of solid-state electronics. Braun's wireless inventions that were part of his system were important in the early history of the German radio industry, when he was, for a time, at the "storm center of

worldwide commercial and political interests" (p. 127).

The biographer of a scientist-inventor faces a difficult problem in trying to achieve a balanced coverage that includes the frequently abstruse details of the subject's work viewed as intellectual history and the social and cultural context in which the work was done. Kurylo, who wrote the original version of this biography that was published in German in 1965, has achieved greater success in presenting the context than in tracing Braun's intellectual development and how his ideas and inventions are linked to the contributions of his colleagues and others such as Oliver Lodge, Charles Susskind has translated the biography into English and, we are informed, also "shortened and edited" the original text. Susskind added 36 reference notes to a 331-item bibliography compiled by Kurylo. I felt that it would have been beneficial if he had added also a short introductory essay giving his own perspective on Braun.



Braun's early wireless experiments at Strassbourg received financial support from the chocolate entrepreneur, Ludwig Stollwerck, who became the chairman of the board of the Telebraun company formed in 1899. It is a curious fact that two leading wireless pioneers, Braun and Marconi, relied on capital from German chocolate and Irish whisky, respectively. A merger between Telebraun and the Siemens and Halske company occurred in 1900 to form one of the two major German wireless firms of the early twentieth century. Adolf Slaby, science adviser to the Kaiser, is presented in this book as Braun's archrival whose competing wireless communication system was developed by the Allgemeine Electrizitäts Gesellschaft (AEG). Pressure from the German government resulted in a merger of the Braun-Siemens and Slaby-AEG wireless firms in 1903 to form the Telefunken company to compete with the British Marconi company in international wireless. By 1914 a Telefunken station at Sayville, Long Island, could receive direct wireless messages

from Germany. The Sayville station became the focal point of litigation by the Marconi company as the British sought to close down the last remaining means of direct communication between Germany and the United States. (The German telegraph cables had been cut soon after the war began.) Braun and Zenneck managed to evade the British blockade and arrived in New York late in 1914 to defend the Telefunken position. Their mission became academic when the U.S. Navy took over control of the Sayville facility in 1915. Braun was never able to return to Germany because of the war and died in 1918. His last project was an unpublished manuscript entitled "Physics for Women," intended to provide remedial education in science to women who had not had an opportunity to study physics in school. Although it is stated that Marconi "did not appear" to participate in the legal proceedings against Telefunken (p. 208), he did in fact come to New York for that purpose in April 1915. One other minor point is that E. F. W. Alexanderson is wrongly identified in a group photograph of those attending a banquet of the Institute of Radio Engineers in 1915. Alfred Goldsmith was actually a professor at the College of the City of New York rather than at Columbia (p. 211).

Braun's own interpretation of his contributions to wireless was given in his Nobel Lecture, "Electrical Oscillations and Wireless Telegraphy," delivered in Stockholm in November 1909 and included as an appendix to this biography. As a supplement that provides a somewhat different perspective on how Braun's research and inventions were related to those of Marconi, Lodge, and others, I would recommend Hugh Aitken's *Syntony and Spark*.

Kurylo and Susskind have presented a persuasive case for remembering Braun whenever we watch television on the "Braun tube." This biography deserves a careful reading by historians of modern science and technology.

JAMES E. BRITTAINE